

Ship Oct 7.

Work Order ID 137456

\*137456\*

Page 1

October 02, 2015 2:50:51 PM

Item ID: D3518-3 Accept \*N900040100\* Setup Start \*NS1\*  
Revision ID: Stop \*NS2\*  
Item Name: Ball Joint End  
Start Date: 10/1/2015 Start Qty: 4.00 \*4\* Cust Item ID:  
Required Date: 10/22/2015 Req'd Qty: 4.00 \*4\* Customer:  
Reference: 20151002

Approvals: Process Plan: SBA Date: Tooling: Date: Run Start \*NR1\*  
QC: Date: SPC (Y/N): Date: Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr | Revision Nbr |
|----------|--------------|
| D3518    | Rev B        |

100 PURCHASING 0.00  
\*100\*  
Purchasing Memo 0.00  
Purchasing Issue P/O: 30001 Purchase Part Number: 2458K14 Supplier: Mc  
Master CarrCertificate of conformity is required  
OCT 05 2015 4

110 Receive & Inspect for Damage & Mat'l Certs 0.00  
\*110\*  
Packaging Memo 0.00  
Packaging Ensure certificate of conformity is attached  
OCT 06 2015 DAS 6 9-89

120 QC6- Inspect dimensions to drawing 0.00  
\*120\*  
QC Memo 0.00  
Quality Control  
OCT 07 2015 DAS 38 9-89

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                     |  |  |
|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |                                                                                                                                                     |  |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  | MRB (QSI042) Approval<br><br><br>Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |  |
| Description Work Order Deviation                             |  |                                                                                                                                                                                    |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |                                                                                                                                                     |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                     |  |  |

| Root Cause         |                          |                       |                          | FAULT CATEGORY         |                          |                                   |                          |                       |                          |                      |                          |
|--------------------|--------------------------|-----------------------|--------------------------|------------------------|--------------------------|-----------------------------------|--------------------------|-----------------------|--------------------------|----------------------|--------------------------|
| Environment        | <input type="checkbox"/> | No Re-verification    | <input type="checkbox"/> | Pressure/Forced        | <input type="checkbox"/> | Temperature/Cure                  | <input type="checkbox"/> | Power Loss/Surge      | <input type="checkbox"/> | Positioned Wrong     | <input type="checkbox"/> |
| Design             | <input type="checkbox"/> | Operator              | <input type="checkbox"/> | Bending                | <input type="checkbox"/> | Set-up                            | <input type="checkbox"/> | Folio/Program         | <input type="checkbox"/> | Outside Dimensions   | <input type="checkbox"/> |
| Doc/Data           | <input type="checkbox"/> | Offset/Setup          | <input type="checkbox"/> | Centre Not Concentric  | <input type="checkbox"/> | BOM/Route                         | <input type="checkbox"/> | Grain                 | <input type="checkbox"/> | Over/Under tolerance | <input type="checkbox"/> |
| Equip/Tooling      | <input type="checkbox"/> | Supplier              | <input type="checkbox"/> | Cracks                 | <input type="checkbox"/> | Broken/Damage/Defect              | <input type="checkbox"/> | Weld                  | <input type="checkbox"/> | Part Incorrect       | <input type="checkbox"/> |
| Handling/Pre       | <input type="checkbox"/> | Training              | <input type="checkbox"/> | Crimp/Kink/Ripple/Wave | <input type="checkbox"/> | Inspection Incomplete/Unqualified | <input type="checkbox"/> | Wrong Stock Pulled    | <input type="checkbox"/> | Part Lost/Missing    | <input type="checkbox"/> |
| Material           | <input type="checkbox"/> | Use for Testing       | <input type="checkbox"/> | Cuffs                  | <input type="checkbox"/> | Contamination                     | <input type="checkbox"/> | Out of Sequence       | <input type="checkbox"/> | Part Moved           | <input type="checkbox"/> |
| Internal Transport | <input type="checkbox"/> | Poor Information      | <input type="checkbox"/> | Crushing               | <input type="checkbox"/> | Countersink                       | <input type="checkbox"/> | Off-set               | <input type="checkbox"/> | Drawing              | <input type="checkbox"/> |
| Tribal Knowledge   | <input type="checkbox"/> | Rushing               | <input type="checkbox"/> | Heat Treat             | <input type="checkbox"/> | Cut Too Short                     | <input type="checkbox"/> | Mislabeled            | <input type="checkbox"/> | Finish               | <input type="checkbox"/> |
| LOA                | <input type="checkbox"/> | Product Improvement   | <input type="checkbox"/> | Wave/Twist in Tube     | <input type="checkbox"/> | Instructions Incomplete/Unclear   | <input type="checkbox"/> | Fit/Function          | <input type="checkbox"/> | Misread              | <input type="checkbox"/> |
| Substation         | <input type="checkbox"/> | Process Improvement   | <input type="checkbox"/> | Marks/Chatter          | <input type="checkbox"/> | Drill Holes                       | <input type="checkbox"/> | Misaligned/off center | <input type="checkbox"/> | Turning Sequence     | <input type="checkbox"/> |
| Past Expiry Date   | <input type="checkbox"/> | Manufacturing Process | <input type="checkbox"/> | OTHER :                |                          |                                   |                          |                       |                          |                      |                          |
| Misidentified      | <input type="checkbox"/> | Past Due              | <input type="checkbox"/> |                        |                          |                                   |                          |                       |                          |                      |                          |

**Work Order ID 137456**

October 02, 2015 2:50:51 PM

**\*137456\***

Page 2

Item ID: D3518-3      Accept      **\*N900040100\***      Setup Start **\*NS1\***  
Revision ID:      Stop **\*NS2\***  
Item Name: Ball Joint End  
Start Date: 10/1/2015      Start Qty: 4.00      **\*4\***      Cust Item ID:  
Required Date: 10/22/2015      Req'd Qty: 4.00      **\*4\***      Customer:  
Reference:

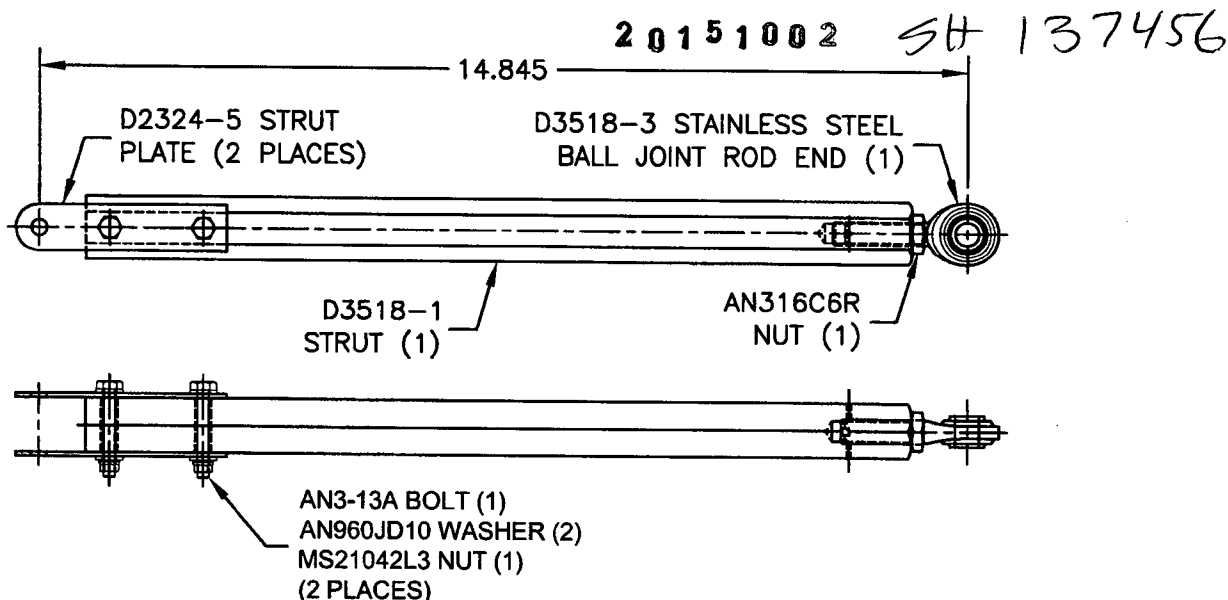
Approvals:      Process Plan:      Date:      Tooling:      Date:      Run Start **\*NR1\***  
QC:      Date:      SPC (Y/N):      Date:      Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                           | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|----------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 130                            | Identify as per dwg & Stock Location: <u>Sto40</u> | 0.00                 |         |        |              |               |               |                  |                |
| <b>*130*</b>                   |                                                    |                      |         |        |              |               |               |                  | DAG            |
| Packaging                      | Memo                                               | 0.00                 |         |        |              | 4             |               | OCT 08 2015      | 03<br>9-09     |
| Packaging                      |                                                    |                      |         |        |              |               |               |                  |                |
| 140                            | QC21- Final Inspection - Work Order Release        | 0.00                 |         |        |              |               |               |                  |                |
| <b>*140*</b>                   |                                                    |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                               | 0.01                 |         |        |              |               |               | ML3              | OCT 02 2015    |
| Quality Control                |                                                    |                      |         |        |              |               |               |                  |                |

SA 20151008



|                      |                                |                                                   |                        |
|----------------------|--------------------------------|---------------------------------------------------|------------------------|
| DESIGN<br><i>B</i>   | DRAWN BY<br><i>B</i>           | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>PH</i> | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br>D3518                              | REV. B<br>SHEET 1 OF 3 |
| DATE<br>06.10.23     |                                | TITLE<br>BASKET (A119) STRUT                      | SCALE<br>1:3           |
| A                    | 06.06.21                       | NEW ISSUE                                         |                        |
| B                    | 06.10.23                       | RE-DESIGN                                         |                        |



### D3518-041 STRUT ASSEMBLY

| QTY<br>-041 | Part Number | Description                        |
|-------------|-------------|------------------------------------|
| X           | D3518-041   | STRUT ASSEMBLY                     |
| 2           | D2324-5     | STRUT PLATE                        |
| 1           | D3518-1     | STRUT                              |
| 1           | D3518-3     | STAINLESS STEEL BALL JOINT ROD END |
| 2           | AN3-13A     | BOLT                               |
| 1           | AN316C6R    | NUT                                |
| 4           | AN960JD10   | WASHER                             |
| 2           | MS21042L3   | NUT                                |

#### NOTES:

- 1) IDENTIFY WITH DART P/N "D3518-041" USING FINE POINT PERMANENT INK MARKER

RELEASED

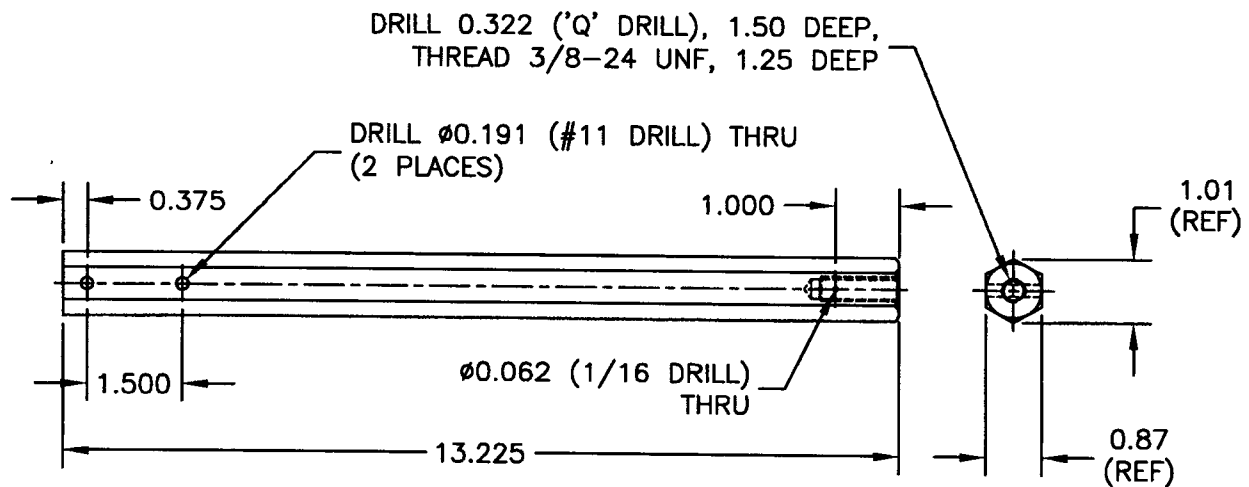
06.11.17 *[Signature]*

Copyright © 2006 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



|                      |                                |                                                   |                        |
|----------------------|--------------------------------|---------------------------------------------------|------------------------|
| DESIGN<br><i>B</i>   | DRAWN BY<br><i>B</i>           | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>PH</i> | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br>D3518                              | REV. B<br>SHEET 2 OF 3 |
| DATE<br>06.10.23     |                                | TITLE<br>BASKET (A119) STRUT                      | SCALE<br>1:3           |



### D3518-1 STRUT

#### NOTES:

- 1) MATERIAL: M6061-T6 (OR 6061-T651/T6510/T6511/T62) ALUMINUM HEX BAR PER AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR PER AMS-QQ-A-200/8 (OR AMS 4160)  
(REF DART MATERIAL SPEC M6061T6H0.875)
- 2) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES 0.005 TO 0.010 MAX

RELEASED

06-11-17 *[Signature]*

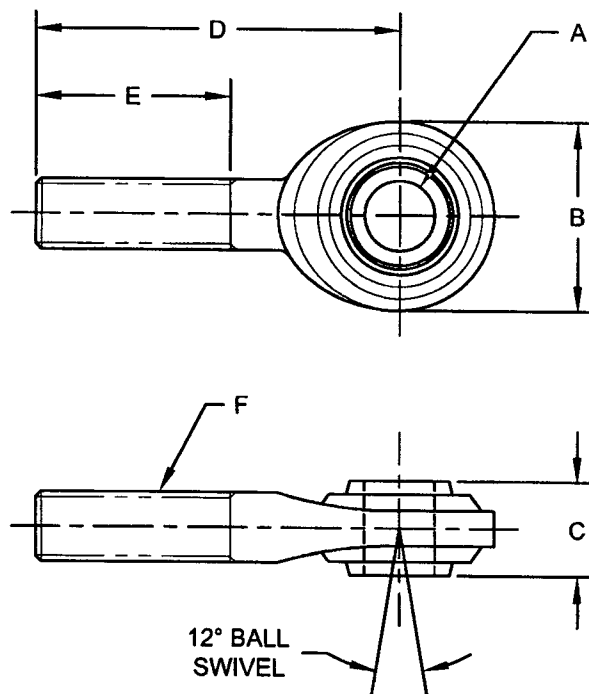
Copyright © 2006 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



|                              |                                |                                                          |                        |
|------------------------------|--------------------------------|----------------------------------------------------------|------------------------|
| DESIGN<br><i>[Signature]</i> | DRAWN BY<br><i>[Signature]</i> | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>PH</i>         | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br>D3518                                     | REV. B<br>SHEET 3 OF 3 |
| DATE<br>06.10.23             |                                | TITLE<br>BASKET (A119) STRUT                             | SCALE<br>1:1           |

## SPECIFICATION CONTROL DRAWING



| DART P/N | A     | B    | C    | D     | E    | F                 | LOAD* | POSSIBLE SUPPLIER             |
|----------|-------|------|------|-------|------|-------------------|-------|-------------------------------|
| D3518-3  | 0.375 | 1.00 | 0.50 | 1.938 | 1.25 | 3/8-24<br>UNF, RH | 4012  | McMASTER-CARR,<br>P/N 2458K14 |

\* Indicated load is Static Radial Load Capacity in lbs

### NOTES:

- 1) TYPE: MALE THREADED SHANK CARBON-FIBER-REINFORCED PLASTIC RACE BALL JOINT ROD END
- 2) MATERIAL: ZINC PLATED STEEL HOUSING BALL WITH PTFE LUBRICATED CARBON-FIBER-REINFORCED PLASTIC RACE.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES

RELEASED

06.11.17 *[Signature]*

Copyright © 2006 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



# Packing Lis

200 Aurora Industrial Pkwy  
Aurora OH 44202-8087  
330-995-5500  
cle.sales@mcmaster.com

Dart Aerospace Ltd  
1270 Aberdeen St  
Hawkesbury ON K6A 1K7  
Canada

Purchase Order  
**PO30001**

Order Placed By  
**Chantal Lavoie**

McMaster-Carr Number  
**1583019-02**

Page 1 of 2

10/05/2015

| Line | Product                                                                                                             | Ordered     | Shipped |
|------|---------------------------------------------------------------------------------------------------------------------|-------------|---------|
| 1    | <b>2458K14</b> Carbon-Fiber Insert Ball Joint Rod End, 3/8"-24 Right-Hand Male Shank, 3/8" Ball ID, 1-1/4" L Thread | 4<br>Each   | 4 ✓     |
| 2    | <b>5905A11</b> Copper Replaceable-Face Hammer, 1 lb, 1" Face Diameter, 9" Overall Length                            | 1<br>Each   | 1 ✓     |
| 3    | <b>5905A21</b> 1" Diameter Replacement Copper Hammer Face for, Copper Replaceable-Face Hammer                       | 1<br>Each   | 1 ✓     |
| 4    | <b>1850K12</b> Duct Booster Fan, Inline Mount, Single Speed, for 6" Duct Diameter                                   | 1<br>Each   | 1 ✓     |
| 5    | <b>17905K38</b> Ready to Connect Drop-Ceiling Diffuser, for 6" Duct Diameter                                        | 1<br>Each   | 1 ✓     |
| 6    | <b>1773K68</b> Galvanized Steel 90 Degree Elbow, 6" Female ID for, Standard Duct                                    | 1<br>Each   | 1 ✓     |
| 7    | <b>1766K492</b> Galvanized Steel Female Exhaust Vent, 6" Female ID for, Standard Duct                               | 1<br>Each   | 1 ✓     |
| 8    | <b>9552T61</b> Assembled Compact Push-in Connector, with 6" Wire Leads, 3 Pole                                      | 1<br>Each   | 1 ✓     |
| 10   | <b>2527K22</b> T-Handle Expansion Plug with Brass Handle, for 2-1/2 Pipe Size, Zinc-Plated Steel                    | 2<br>Each   | 2 ✓     |
| 11   | <b>8485A16</b> Spring Locating Pin, 0.24" Head Diameter, 16.9-18.6 lb Nose Force                                    | 1<br>Each   | 1 ✓     |
| 12   | <b>92220A163</b> Low-Profile Alloy Steel Socket Head Cap Screw, 10-24 Thread, 1/2" Length, Packs of 50              | 1<br>Pack   | 1 ✓     |
| 13   | <b>2860A74</b> Super Duty Solid-Carbide Jobbers' Drill Bit, Wire Gauge 58, 1-1/2" Overall L, .6" Drill Depth        | 5<br>Each   | 5 ✓     |
| 14   | <b>54075A61</b> 1/4" Square Drive Ball-Point Hex-Bit Socket, 7-Piece Short Hex Set with a Clip Rail                 | 1<br>Each   | 1 ✓     |
| 15   | <b>6739A41</b> Tool Positioner, 1 to 10 lb Load Range, 1/16" Diameter Nylon Cable                                   | 2<br>Each   | 2 ✓     |
| 16   | <b>5392K12</b> Rigid White Polypropylene Tubing, .170" ID, 1/4" OD, .040" Wall Thickness, 100' Length               | 100<br>Feet | 100 ✓   |
| 17   | <b>51495K117</b> Push-to-Connect Tube Fitting for Air & Gases, Straight Adapter for 1/4" Tube OD X 3/8 NPT Male     | 3<br>Each   | 3 ✓     |
| 18   | <b>3528T23</b> Brass Barbed Fitting for Drinking Water, Straight for 1/2" Tube ID X 1/2 Male Pipe Size              | 4<br>Each   | 4 ✓     |
| 19   | <b>4429K377</b> Low-Pressure Brass Threaded Pipe Fitting, 1/2 X 3/8 X 1/2 Pipe Size, Inline Reducing Tee            | 1<br>Each   | 1 ✓     |
| 20   | <b>3528T61</b> Crimping Tool for 1/2" Tube ID, Brass Barbed Fitting for Drinking Water                              | 1<br>Each   | 1 ✓     |

15/10/16



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO30001**

Purchase Order Date 10/5/2015

PO Print Date 10/5/2015

Page Number 1 of 10

**Order From :**

VU-MCM001

**Ship To :** DART AEROSPACE LTD

MCMaster-CARR SUPPLY CO,  
P.O. BOX 7690  
CHICAGO, IL 60680-7690  
US

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 330 995 5500

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #**

10127-2607

**Ship To Contact**

**Terms**

Net 10

**Ship To Phone**

**Currency**

USD

**Ship Via:**

Purolator ground ppd

**FOB**

FCA - (Free Carrier)

**Ship Acct:**

| Line Nbr                          | Reference<br>Vendor Part Number | Description/<br>Mfg ID      | Req Date/<br>Taxable<br>Promise Date | CD | Req Qty/<br>Unit of<br>Measure | PO Unit Price | Extended<br>Price |
|-----------------------------------|---------------------------------|-----------------------------|--------------------------------------|----|--------------------------------|---------------|-------------------|
| 1                                 | 2458K14                         | rod end                     | 10/7/2015<br>Yes<br>10/7/2015        |    | 4.00<br>Each                   | \$5.39        | \$21.56           |
| AS PER DWG D3518 REV.B<br>B137456 |                                 |                             |                                      |    |                                |               |                   |
| Line Total:                       |                                 |                             |                                      |    |                                |               | \$21.56           |
| 2                                 | 71500-20                        | 5905A11 COPPER<br>HAMMER    | 10/7/2015<br>Yes<br>10/7/2015        |    | 1.00<br>Each                   | \$19.94       | \$19.94           |
| Line Total:                       |                                 |                             |                                      |    |                                |               | \$19.94           |
| Deliver To: FRANS                 |                                 |                             |                                      |    |                                |               |                   |
| 3                                 | 71500-20                        | 5005A21<br>REPLACEMENT FACE | 10/7/2015<br>Yes<br>10/7/2015        |    | 1.00<br>Each                   | \$4.54        | \$4.54            |

15/10/16  
SD

**PO Instructions:** PROCUREMENT QUALITY CLAUSES  
A000 CLAUSES NOT REQUIRED

**Note:**

10/5/2015